

Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Thus, claim 1 has been amended to delete component (a), i.e. a diester compound of polyoxyalkylene glycol and aliphatic monocarboxylic acid. As a result of this, claims 2-6, which refer to component (a), have been cancelled.

Each of claims 12, 13, 15 and 17 has been amended to correct an inadvertent error. That is, these claims erroneously refer to component (c) as the diester compound, but the diester compound is component (b) instead of (c). Component (c) in claim 1 is the polyester compound, and claims 12, 13, 15 and 17 have been amended to reflect this.

The patentability of the present invention over the disclosure of the reference relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Thus, the rejection of claims 1-17 and 19-22 under 35 U.S.C. §102(b) or 35 U.S.C. §103(a) based on WO 97/46628 is respectfully traversed.

As correctly noted by the Examiner, USP 6,146,512 (Hoefer et al.) is an equivalent of the WO '628 reference. Applicants note that US '512 is itself available as prior art against the present invention, because its §102(e) date of December 3, 1998 is prior to the filing dates of all of Applicants' Japanese priority applications.

The Examiner states that Hoefer et al. teach the instant diester (a). However, as indicated above, claim 1 has been amended to delete diester (a).

Hoefer et al. disclose a process for controlling foam in a water-based electrophoretic coating bath for coating an electrically conductive substrate, wherein the bath contains at least one cathodically depositable synthetic resin, by adding to the bath a polyalkylene oxide compound whose oxyalkyl groups contain 2 to 4 carbon atoms and the terminal OH groups are esterified with a carboxylic acid or etherified with an allyl or methyl aryl group, and has a solubility of more than 50 parts by weight in 100 parts by weight at 25°C.

Furthermore, with regard to the esterification of terminal OH groups of polyalkylene oxide, and the additives, Hoefer et al. state as follows:

... the hydroxyfunctional compounds mentioned may also be esterified with carboxylic acids and/or carboxylic anhydrides to cap the OH group. The esterification reaction may be carried out with aliphatic or aromatic carboxylic acids containing 2 to 18 carbon atoms, for example acetic acid, propanoic acid, butyric acid, valeric acid, caproic acid, oenanthic acid, caprylic acid, pelargonic acid, decanoic acid, lauric acid, myristic acid, palmitic acid or stearic acid. (Column 5, lines 3-11)

....

The electrophoretic coating baths according to the invention may contain any of the usual binders, crosslinking agents, pigments, catalysts and additives. (Column 6, lines 9-11)

The Examiner states that Hoefer et al. teach a water based electrophoretic coating composition comprising a cationic resin and a crosslinker in the abstract and at column 6, lines 9-15; and that the instant diester (a) is further taught at column 3, line 60 to column 4, line 49 and at column 5, lines 60-67.

As mentioned above, however, Applicants have now amended claim 1 to delete diester compound (a) from ester compound (ii) in the electrodeposition coating composition of the present invention.

Hoefer et al. fail to teach or suggest adding diester compound (b) and/or polyester compound (c) as specified in claim 1 of the present application to an electrophoretic coating bath.

The present specification, on the other hand, states as follows, with respect to advantages which are attained by the addition of diester compound (b) and/or polyester compound (c) to an electrodeposition coating composition which contains a cationic or anionic resin and a crosslinking agent:

The present coating composition containing the ester compound described above can form a coating film which is excellent in a throwing property (electrodeposition coating) and a film-forming property and which is improved in a corrosion resistance and a smoothness even if the volatile organic solvent has a content of 1 % by weight or less, preferably 0.5 % by weight or less. In particular, it becomes possible to coat the coating composition in a film thickness of 15 μm or more, particularly 20 μm or more in terms of a cured coating film thickness even when the cationically electrodeposition coating composition is coated on an alloy-plated steel plate, and crater is not observed to be produced. These characteristics are not varied even after

storing the present coating composition over a long period of time. Thus, according to the present invention, a content of the volatile organic solvent c&n be reduced to 1 % by weight or less without lowering a corrosion resistance and a smoothness of the coating film, and a reduction in VOC (for a definition of VOC please see the sentence bridging pages 1 and 2 of the specification) can be achieved. (The present specification, page 13, line 24 to page 14, line 8).

Hoefer et al. fail to teach or suggest anything about the technical advantages which are attained by blending the specified diester compound (b) and/or polyester compound (c) with an electrodeposition coating composition.

In Hoefer et al., the esterified polyalkylene oxide is added to an electrophoretic coating bath for the purpose of controlling foaming in the bath during cationic electrodeposition coating, which purpose is quite different from that of the addition of diester compound (b) and/or polyester compound (c) to the electrodeposition coating composition in the present invention.

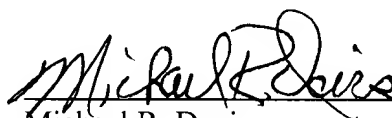
For these reasons, Applicants take the position that the presently claimed invention is clearly patentable over the Hoefer et al. reference.

Therefore, in view of the foregoing amendments and remarks, it is submitted that the ground of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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